

REMARKS

Favorable reconsideration of this application is requested in view of the following remarks. Claim 1 is amended. The revision to claim 1 is supported, for example, at page 7, lines 9-12 in the specification. Claims 1-18 are pending in the application, with claim 1 being independent.

Objection to Specification

The Examiner has objected to the specification. In particular the Examiner has objected to the limitation of claim 1 reciting that the battery modules have "different dimensions in a thickness direction." Applicants respectfully disagree; however, Applicants' have amended claim 1 to clarify the claimed invention.

Claim 1 recites that each battery module includes at least one cell and has edge portions with dimensions that vary in a thickness direction within a predetermined tolerance. As shown in Figure 2A and discussed at page 7, lines 9-12 in the specification, edge portions (for example, convex portions 21) are formed so that their dimensions vary within a fabrication tolerance.

Claim rejections – 35 U.S.C. § 112

Claims 1-18 stand rejected as failing to comply with the written descriptions requirement and as being indefinite.

As noted above, with respect to the specification objection, Applicants respectfully submit that the amendment to claim 1 is fully supported by the specification as filed. With respect to the Examiner's assertion that claim 1 is indefinite, Applicants have amended claim 1 to clarify that the thickness direction of the edge portions can be determined by the relationship between the edge portions and the width of the current flow paths.

Claim rejections - 35 U.S.C. § 102(b)

Claims 1-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by WO 98/31059 ("*Ovshinsky*"). Applicants respectfully traverse this rejection.

Applicants believe that the instant Amendment and Response overcomes the Examiner's objections to the specification and rejection of claims under 35 U.S.C. § 112. Accordingly, Applicants respectfully request that the Examiner reconsider the arguments presented in the previous Amendment and Response in light of the clarifications provided above.

Independent claim 1 is directed a fluid-cooled battery pack system. Each battery module includes at least one cell and has edge portions with dimensions that vary in a thickness direction within a predetermined tolerance. The coolant flow paths have a target width such that a variation in temperature between the battery modules caused by the predetermined tolerance relative to the target width of the coolant flow paths is maintained within a predetermined range and all the battery modules have a predetermined temperature or less when the coolant flows through the coolant flow paths.

In other words, a target width is set in consideration of a minimum cooling variation caused by a predetermined tolerance of the edge portions of battery modules. For example, as shown in Figure 3, a curve HTmax represents a heat transfer coefficient when the fabrication tolerance of a cooling slit width is a maximum (i.e., target width plus fabrication tolerance) and curve HTmin represents a heat transfer coefficient when the fabrication tolerance of a cooling slit width is a minimum (i.e., target width minus fabrication tolerance). As shown in Figure 3, a target width can be set taking into consideration a cooling variance caused by the fabrication tolerances (for example, the difference between HTmax and HTmin). See, for example, page 8, lines 8-25.

Ovshinsky relates to a fluid-cooled battery pack with coolant flow channels and coolant inlets and outlets. *Ovshinsky* merely discloses that the temperature difference between battery modules should be controlled to less than 8°C. However, *Ovshinsky* does not disclose or suggest that a variation in temperature can be reduced by using a coolant flow path that has a width set to a value that accounts for a predetermined tolerance of the edge portions of a battery module, as recited in claim 1.

For the above reasons, Applicants submit that independent claim 1 is allowable over the cited art. In addition, claims 2-18 depend from claim 1 and are believed allowable for at least the same reasons. Moreover, each of these dependent claims recites additional features and is believed allowable in its own right. Individual consideration of the dependent claims is respectfully requested.

Claims 7-9 are even further removed from the cited reference. Each of those claims include the feature where the battery modules in the battery pack case have a plurality of concave and convex portions on the sides opposed to other battery modules, and when the battery modules are connected by bringing the opposite convex portions into contact with each other, gaps between the battery modules formed by the concave portions act as the coolant flow paths.

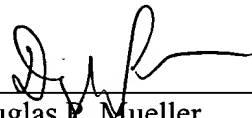
Ovshinsky also does not teach or suggest this arrangement. Instead, *Ovshinsky* describes coolant flow paths that are formed by additional members, such as spacers. Accordingly, Applicants respectfully submit that claims 7-9 are allowable over the cited reference.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested.

Respectfully submitted,

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